

# WEST Search History

DATE: Thursday, March 20, 2003

| <u>Set Name</u><br>side by side                    | <u>Query</u>         | <u>Hit Count</u> | <u>Set Name</u><br>result set |
|--|----------------------|------------------|-------------------------------|
| <i>DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=NO; OP=OR</i> |                      |                  |                               |
| L10  | L8 with l2           | 11               | L10                           |
| L9   | L8 same l2           | 21               | L9                            |
| L8   | fn3 or fibronectin   | 8536             | L8                            |
| L7   | l5 and fibronectin   | 5                | L7                            |
| L6   | l5 and fn3           | 4                | L6                            |
| L5   | L4 or l3             | 35               | L5                            |
| L4   | L2 and minibod\$\$\$ | 35               | L4                            |
| L3   | L2 and monobod\$\$\$ | 3                | L3                            |
| L2   | phage adj display    | 4773             | L2                            |
| L1   | phage display        | 1274800          | L1                            |

END OF SEARCH HISTORY

**WEST**

Generate Collection

Print

L9: Entry 16 of 21

File: USPT

Jan 30, 2001

DOCUMENT-IDENTIFIER: US 6180084 B1

TITLE: NGR receptor and methods of identifying tumor homing molecules that home to angiogenic vasculature using same

Detailed Description Text (254):

The use of phage display peptide libraries to isolate minimal receptor sequences that bind to fibronectin and RCD-containing fibronectin fragments in affinity panning is described in Pasqualini et al., J. Cell Biol. 130:1189-1196 (1995), which is incorporated herein by reference. A predominant motif, CWDD(G/L)WLC was obtained and shown to be a structural mimic of an RGD-binding site on integrins (Pasqualini et al., supra, 1995). By searching the protein database for sequences homologous to the W(D/N)DGWL sequence (an RGD-binding peptide, Pasqualini et al., supra, 1995), an identical peptide sequence, except for the flanking cysteines, was found in aminopeptidases. The W(D/N)DGWL sequence was highly conserved in aminopeptidases from bacteria to humans, indicating that this motif represents a functionally relevant domain (Favaloro et al., supra (1988); Rawlings and Barret, Biochem J. 290:205-218 (1993), each of which is incorporated herein by reference). CD13/Aminopeptidase N contains the closely related WNDGWL sequence (Look et al., supra (1989); Chen et al., J. Immunol. 157:2593-2600 (1996), each of which is incorporated herein by reference).

**WEST**

Generate Collection

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L5: Entry 29 of 35

File: USPT

Jul 3, 2001

DOCUMENT-IDENTIFIER: US 6255071 B1

TITLE: Mammalian viral vectors and their uses

Detailed Description Text (92):

The display vehicle of the vector may be, but is not limited to, thioredoxin for intracellular peptide display in mammalian cells (Colas et al., 1996, Nature 380:548-550) or may be a minibody (Tramontano, 1994, J. Mol. Recognit. 7:9-24) for the display of peptides on the mammalian cell surface. Each of these would contain a polylinker for the insertion of a library of random oligonucleotides encoding random peptides at the positions specified above. In an alternative embodiment, the display vehicle may be extracellular, in this case the minibody could be preceded by a secretion signal and followed by a membrane anchor, such as the one encoded by the last 37 amino acids of DAF-1 (Rice et al., 1992, Proc. Natl. Acad. Sci. 89:5467-5471). This could be flanked by recombinase sites (e.g., FRT sites) to allow the production of secreted proteins following passage of the library through a recombinase expressing host.

Detailed Description Text (93):

In one embodiment of the present invention, these cassettes would reside at the position normally occupied by the cDNA in the sense-expression vectors described above. In an amber suppressor strain of bacteria and in the presence of helper phage, these vectors would produce a relatively conventional phage display library which could be used exactly as has been previously described for conventional phage display vectors. Recovered phage that display affinity for the selected target would be used to infect bacterial hosts of the appropriate genotype (i.e., expressing the desired recombinases depending upon the cassettes that must be removed for a particular application). For example for an intracellular peptide display, any bacterial host would be appropriate (provided that splice sites are used to remove pelB in the mammalian host). For a secreted display, the minibody vector would be passed through bacterial cells that catalyze the removal of the DAF anchor sequence. Plasmids prepared from these bacterial hosts are used to produce virus for assay of specific phenotypes in mammalian cells.

Detailed Description Text (94):

In some cases, if the target is unknown the phage display step could be skipped and the vectors could be used for intracellular or extracellular random peptide display directly. The advantage of these vectors over conventional approaches is their flexibility. The ability to functionally test the peptide sequence in mammalian cells without additional cloning or sequencing steps makes possible the use of much cruder binding targets (e.g., whole fixed cells) for phage display. This is made possible by the ability to do a rapid functional selection on the enriched pool of bound phages by conversion to retroviruses that can infect mammalian cells.

Detailed Description Text (194):

It is well established that the interaction between extracellular signaling molecules (e.g., growth factors) and their receptors occurred over large protein surfaces. The present invention provides a novel screen that allows for rapid identification of peptides in mammalian cells by expressing constrained peptides on the surface of receptor-bearing cells and selecting directly for biological function. A synthetic peptide can be displayed in a mammalian system by replacing one flexible loop of a synthetic peptide display vehicle or cassette, the minibody, with a polylinker into which a library of random oligonucleotides encoding random peptides may be inserted. The resulting synthetic chimera can be tethered to the membrane so that it appears on the cell surface by providing a heterologous membrane anchor such as that derived from the c. elegans decay accelerating factor (DAF). This chimeric protein could then serve as an extracellular peptide display vehicle. Peptide libraries in a retroviral vector

could be screened directly for the ability to activate receptors, or screening in vivo could follow a pre-selection of a mini-library by phage display.

Detailed Description Text (258):

The pMODis vectors are designed to act as dual purpose vectors that allow the combination of phage display approaches with functional screening in mammalian systems. These are designed to allow the display of random peptide segments on the surface of filamentous bacteriophage. The displayed peptides can be screened via an affinity approach with a known ligand or a complex mixture of ligands (e.g. fixed cells). The pool of phages which bind to the desired substrate can then be used to generate retroviruses that can be used to infect mammalian cells. A large pool of phage can then be tested individually for the ability to elicit a phenotype. pMODisI is designed to allow display on the surface of phage and of mammalian cells. Additionally by passage through a specific host strain pMODisI can be used to direct secretion of displayed peptides from mammalian cells. pMODisII is an intracellular display vector. Both are created by the insertion of cassettes between the EcoRI and XhoI sites (destroying these sites) of p.Hygro.MarXII. The design of the individual cassettes is as follows.

Detailed Description Text (267):

7. the minibody 61 residue peptide display vehicle sequence (Tramontano, J. Mol. Recognit. 7: 9-24 (1994))

Detailed Description Text (274):

In an amber suppressor strain and in the presence of helper phage, a geneIII fusion protein is produced and displayed on the surface of the M13-type phage. This allows display of random peptide sequence cloned into one or both of the two constrained loops of the minibody to be displayed on the phage surface. Expression in packaging cells of MODisI genomic retroviral RNA allows removal of the bacterial promoter and secretion sequences by pre-mRNA splicing and causes translation in the mammalian cell to begin at the first methionine of the minibody sequence. Furthermore, in a mammalian cell, the amber codon would terminate translation prior to the geneIII sequence creating a membrane-bound extracellular minibody that displays a random peptide sequence. The minibody could be converted to a secreted protein by passage through a FLP-expressing strain of bacteria. This would cause site-specific recombination at the FRT sites and deletion of the membrane anchor sequence.

Other Reference Publication (33):

Tramontano, A. et al., "The Making of the Minibody: An Engineered .beta.-Protein for the Display of Conformationally Constrained Peptides," J. Mol. Recognition, (1994), 7: 9-24.

**WEST**

Generate Collection

Print

L9: Entry 15 of 21

File: USPT

Feb 19, 2002

DOCUMENT-IDENTIFIER: US 6348584 B1

TITLE: Fibronectin binding protein compounds

Brief Summary Text (91):

Alternatively phage display technology may be utilized to select antibody genes with binding activities towards the polypeptide either from repertoires of PCR amplified v-genes of lymphocytes from humans screened for possessing anti-Fibronectin Binding Protein or from naive libraries (McCafferty, J. et al., (1990), Nature 348, 552-554; Marks, J. et al., (1992) Biotechnology 10, 779-783). The affinity of these antibodies can also be improved by chain shuffling (Clackson, T. et al., (1991) Nature 352, 624-628).

L2 ANSWER 17 OF 18 CAPLUS COPYRIGHT 2003 ACS  
 AN 1995:781250 CAPLUS  
 DN 123:191600  
 TI A peptide isolated from phage display libraries is a structural and functional mimic of an RGD-binding site on integrins  
 AU Pasqualini, Renata; Koivunen, Erkki; Ruoslahti, Erkki  
 CS Cancer Research Center, La Jolla Cancer Research Foundation, La Jolla, CA, 92037, USA  
 SO Journal of Cell Biology (1995), 130(5), 1189-96  
 CODEN: JCLBA3; ISSN: 0021-9525  
 PB Rockefeller University Press  
 DT Journal  
 LA English  
 CC 6-3 (General Biochemistry)  
 AB Many integrins recognize short RGD-contg. amino acid sequences and such peptide sequences can be identified from phage libraries by panning with an integrin. Here, is a reverse strategy, the authors have used such libraries to isolate minimal receptor sequences that bind to fibronectin and RGD-contg. fibronectin fragments in affinity panning. A predominant cyclic motif, \*CWDDG/LWLC\*, was obtained (the asterisks denote a potential disulfide bond). Studies using the purified phage and the corresponding synthetic cyclic peptides showed that \*CWDDGWLC\*-expressing phage binds specifically to fibronectin and to fibronectin fragments contg. the RGD sequence. The binding did not require divalent cations and was inhibited by both RGD and \*CWDDGWLC\*-contg. synthetic peptides. Conversely, RGD-expressing phage attached specifically to immobilized \*CWDDGWLC\*-peptide and the binding could be blocked by the resp. synthetic peptides in soln. Moreover, fibronectin bound to a \*CWDDGWLC\*-peptide affinity column, and could be eluted with an RGD-contg. peptide. The \*CWDDGWLC\*-peptide inhibited RGD-dependent cell attachment to fibronectin and vitronectin, but not to collagen. A region of the .beta.-subunit of RGD-binding integrins that has been previously demonstrated to be involved in ligand binding includes a polypeptide stretch, KDDLW (in .beta.3) similar to WDDG/LWL. Synthetic peptides corresponding to this region in .beta.3 were found to bind RGD-displaying phage and conversion of its two aspartic residues into alanines greatly reduced the RGD binding. Polyclonal antibodies raised against the \*CWDDWGLC\*-peptide recognized .beta.1 and .beta.3 in immunoblots. These data indicate that the \*CWDDGWLC\*-peptide is a functional mimic of ligand binding sites of RGD-directed integrins, and that the structurally similar site in the integrin .beta. subunit is a binding site for RGD.  
 ST RGD site functional mimic integrin  
 IT **Fibronectins**  
 RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)  
 (CWDDGWLC peptide isolated from **phage display** libraries is a structural and functional mimic of RGD-binding site on integrins)  
 IT **Integrins**  
 RL: BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PROC (Process)  
 (CWDDGWLC peptide isolated from phage display libraries is a structural and functional mimic of RGD-binding site on integrins)  
 IT **Animal growth regulators**  
 RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)  
 (vitronectins, CWDDGWLC peptide isolated from phage display libraries is a structural and functional mimic of RGD-binding site on integrins)  
 IT 167776-74-1  
 RL: BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PROC (Process)

(CWDDGWLC peptide isolated from phage display libraries is a structural and functional mimic of RGD-binding site on integrins)

IT 99896-85-2, Arginyl-glycyl-aspartic acid

RL: BSU (Biological study, unclassified); BIOL (Biological study)

(CWDDGWLC peptide isolated from phage display libraries is a structural and functional mimic of RGD-binding site on integrins)

=> s fibronectin# or fn3  
L1 40249 FIBRONECTIN# OR FN3  
  
=> s l1 (10a) (phage display)  
L2 18 L1 (10A) (PHAGE DISPLAY)

=> d l2 1-18

L2 ANSWER 1 OF 18 MEDLINE  
AN 2003125706 IN-PROCESS  
DN 22526583 PubMed ID: 12639821  
TI Novel cyclic and linear oligopeptides that bind to integrin betal chain  
and either inhibit or costimulate T lymphocytes.  
AU Rao Wei Hong; Camp Richard D R  
CS Division of Dermatology, University of Leicester, Medical Sciences  
Building, University Road, LE1 9HN, Leicester, UK.  
SO Int Immunopharmacol, (2003 Mar) 3 (3) 435-43.  
Journal code: 100965259. ISSN: 1567-5769.  
CY Netherlands  
DT Journal; Article; (JOURNAL ARTICLE)  
LA English  
FS IN-PROCESS; NONINDEXED; Priority Journals  
ED Entered STN: 20030318  
Last Updated on STN: 20030318

L2 ANSWER 2 OF 18 MEDLINE  
AN 2002678308 MEDLINE  
DN 22326322 PubMed ID: 12438356  
TI Identification of a fibronectin-binding protein from Staphylococcus  
epidermidis.  
AU Williams Rachel J; Henderson Brian; Sharp Lindsay J; Nair Sean P  
CS Cellular Microbiology Research Group, Eastman Dental Institute for Oral  
Health Care Sciences, University College London, United Kingdom.  
SO INFECTION AND IMMUNITY, (2002 Dec) 70 (12) 6805-10.  
Journal code: 0246127. ISSN: 0019-9567.  
CY United States  
DT Journal; Article; (JOURNAL ARTICLE)  
LA English  
FS Priority Journals  
OS GENBANK-AY101364  
EM 200301  
ED Entered STN: 20021120  
Last Updated on STN: 20030108  
Entered Medline: 20030107

L2 ANSWER 3 OF 18 MEDLINE  
AN 2002271809 MEDLINE  
DN 22006887 PubMed ID: 12010974  
TI Identification of novel adhesins from Group B streptococci by use of  
**phage display** reveals that C5a peptidase mediates  
**fibronectin** binding.  
CM Erratum in: Infect Immun 2002 Jun;70(6):3309  
AU Beckmann Christiane; Waggoner Joshua D; Harris Theresa O; Tamura Glen S;  
Rubens Craig E  
CS Division of Infectious Disease, Children's Hospital and Regional Medical  
Center and University of Washington, Seattle 98105, USA.  
NC AI-30068 (NIAID)  
N01-AI-75326 (NIAID)  
SO INFECTION AND IMMUNITY, (2002 Jun) 70 (6) 2869-76.  
Journal code: 0246127. ISSN: 0019-9567.  
CY United States



DT Journal; Article; (JOURNAL ARTICLE)  
LA English  
FS Priority Journals  
EM 200206  
ED Entered STN: 20020516  
Last Updated on STN: 20020707  
Entered Medline: 20020626

L2 ANSWER 4 OF 18 MEDLINE  
AN 2000036334 MEDLINE  
DN 20036334 PubMed ID: 10567237  
TI Fine mapping of inhibitory anti-alpha5 monoclonal antibody epitopes that differentially affect integrin-ligand binding.  
AU Burrows L; Clark K; Mould A P; Humphries M J  
CS Wellcome Trust Centre for Cell-Matrix Research, University of Manchester, 2.205 Stopford Building, Oxford Road, Manchester M13 9PT, U.K.  
SO BIOCHEMICAL JOURNAL, (1999 Dec 1) 344 Pt 2 527-33.  
Journal code: 2984726R. ISSN: 0264-6021.  
CY ENGLAND: United Kingdom  
DT Journal; Article; (JOURNAL ARTICLE)  
LA English  
FS Priority Journals  
EM 200002  
ED Entered STN: 20000229  
Last Updated on STN: 20000229  
Entered Medline: 20000211

L2 ANSWER 5 OF 18 MEDLINE  
AN 1999057988 MEDLINE  
DN 99057988 PubMed ID: 9837732  
TI The fibronectin type III domain as a scaffold for novel binding proteins.  
AU Koide A; Bailey C W; Huang X; Koide S  
CS Department of Biochemistry and Biophysics, University of Rochester Medical Center, Rochester, NY, 14642, USA.  
NC GM 55042 (NIGMS)  
SO JOURNAL OF MOLECULAR BIOLOGY, (1998 Dec 11) 284 (4) 1141-51.  
Journal code: 2985088R. ISSN: 0022-2836.  
CY ENGLAND: United Kingdom  
DT Journal; Article; (JOURNAL ARTICLE)  
LA English  
FS Priority Journals  
EM 199901  
ED Entered STN: 19990209  
Last Updated on STN: 19990209  
Entered Medline: 19990128

L2 ANSWER 6 OF 18 CAPLUS COPYRIGHT 2003 ACS  
AN 2002:526459 CAPLUS  
DN 137:197956  
TI Staphylococcus aureus fibronectin binding proteins A and B possess a second fibronectin binding region that may have biological relevance to bone tissues  
AU Williams, R. J.; Henderson, B.; Nair, S. P.  
CS Cellular Microbiology Research Group, Division of Surgical Sciences, Eastman Dental Institute for Oral Health Care Sciences, University College, London, UK  
SO Calcified Tissue International (2002), 70(5), 416-421  
CODEN: CTINDZ; ISSN: 0171-967X  
PB Springer-Verlag New York Inc.  
DT Journal  
LA English

RE.CNT 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 7 OF 18 CAPLUS COPYRIGHT 2003 ACS  
 AN 2002:415221 CAPLUS  
 TI Identification of novel adhesins from group B streptococci by use of  
**phage display** reveals that C5a peptidase mediates  
**fibronectin** binding  
 AU Beckmann, Christiane; Waggoner, Joshua D.; Harris, Theresa O.; Tamura,  
 Glen S.; Rubens, Craig E.  
 CS Division of Infectious Disease, Children's Hospital and Regional Medical  
 Center and University of Washington, Seattle, WA, USA  
 SO Infection and Immunity (2002), 70(6), 3309  
 CODEN: INFIBR; ISSN: 0019-9567  
 PB American Society for Microbiology  
 DT Journal; Errata  
 LA English

L2 ANSWER 8 OF 18 CAPLUS COPYRIGHT 2003 ACS  
 AN 2002:415161 CAPLUS  
 DN 137:152100  
 TI Identification of novel adhesins from group B streptococci by use of  
**phage display** reveals that C5a peptidase mediates  
**fibronectin** binding  
 AU Beckmann, Christiane; Waggoner, Joshua D.; Harris, Theresa O.; Tamura,  
 Glen S.; Rubens, Craig E.  
 CS Division of Infectious Disease, Children's Hospital and Regional Medical  
 Center and University of Washington, Seattle, WA, 98105, USA  
 SO Infection and Immunity (2002), 70(6), 2869-2876  
 CODEN: INFIBR; ISSN: 0019-9567  
 PB American Society for Microbiology  
 DT Journal  
 LA English

RE.CNT 52 THERE ARE 52 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 9 OF 18 CAPLUS COPYRIGHT 2003 ACS  
 AN 2002:185277 CAPLUS  
 DN 136:242899  
 TI Phage display libraries and methods for identifying targeting peptides in  
 humans in vivo  
 IN Arap, Wadih; Pasqualini, Renata  
 PA Board of Regents, the University of Texas System, USA  
 SO PCT Int. Appl., 269 pp.  
 CODEN: PIXXD2

DT Patent  
 LA English

FAN.CNT 5

|      | PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|------|---|------|----------|-----------------|----------|
| PI   | WO 2002020723   | A2   | 20020314 | WO 2001-US28044 | 20010907 |
|      | W:  |      |          |                 |          |
|      | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, |      |          |                 |          |
|      | CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, |      |          |                 |          |
|      | GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, |      |          |                 |          |
|      | LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, |      |          |                 |          |
|      | PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, |      |          |                 |          |
|      | US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM      |      |          |                 |          |
|      | RW:   |      |          |                 |          |
|      | GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, |      |          |                 |          |
|      | DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, |      |          |                 |          |
|      | BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG      |      |          |                 |          |
|      | AU 2001090662   | A5   | 20020322 | AU 2001-90662   | 20010907 |
| PRAI | US 2000-231266P   | P    | 20000908 |                 |          |
|      | US 2001-765101  | A    | 20010117 |                 |          |

US 2001-97651 A 20010117  
WO 2001-US28044 W 20010907

L2 ANSWER 10 OF 18 CAPLUS COPYRIGHT 2003 ACS  
AN 2002:51534 CAPLUS  
DN 136:117382  
TI Artificial antibody polypeptides  
IN Koide, Shohei  
PA Research Corporation Technologies, Inc., USA  
SO PCT Int. Appl., 164 pp.  
CODEN: PIXXD2  
DT Patent  
LA English  
FAN.CNT 1

|      | PATENT NO.   | KIND | DATE     | APPLICATION NO. | DATE     |
|------|--|------|----------|-----------------|----------|
| PI   | WO 2002004523  | A2   | 20020117 | WO 2001-US21855 | 20010711 |
|      | WO 2002004523  | A3   | 20020502 |                 |          |
|      | W: AU, CA, JP  |      |          |                 |          |
|      | RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR |      |          |                 |          |
|      | US 2003027319  | A1   | 20030206 | US 2001-903412  | 20010711 |
| PRAI | US 2000-217474P  | P    | 20000711 |                 |          |

L2 ANSWER 11 OF 18 CAPLUS COPYRIGHT 2003 ACS  
AN 2001:636108 CAPLUS  
DN 135:209894  
TI Antibody specific for the ED-B domain of fibronectin, conjugates comprising said antibody, and their use for the detection and treatment of angiogenesis  
IN Neri, Dario; Tarli, Lorenzo; Viti, Francesca; Birchler, Manfred  
PA Eidgenoessische Technische Hochschule Zurich, Switz.  
SO PCT Int. Appl., 75 pp.  
CODEN: PIXXD2  
DT Patent  
LA English  
FAN.CNT 1

|      | PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|------|---|------|----------|-----------------|----------|
| PI   | WO 2001062800   | A1   | 20010830 | WO 2001-EP2062  | 20010223 |
|      | W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM |      |          |                 |          |
|      | RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG  |      |          |                 |          |
|      | EP 1259548  | A1   | 20021127 | EP 2001-915294  | 20010223 |
|      | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR   |      |          |                 |          |
| PRAI | US 2000-512082  | A    | 20000224 |                 |          |
|      | WO 2001-EP2062  | W    | 20010223 |                 |          |

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 12 OF 18 CAPLUS COPYRIGHT 2003 ACS  
AN 2001:320938 CAPLUS  
DN 136:80364  
TI Shotgun phage display cloning  
AU Jacobsson, Karin; Frykberg, Lars

CS Department of Microbiology, Swedish University of Agricultural Sciences,  
Uppsala, SE-750 07, Swed.  
SO Combinatorial Chemistry and High Throughput Screening (2001), 4(2),  
135-143  
CODEN: CCHSFU; ISSN: 1386-2073  
PB Bentham Science Publishers  
DT Journal; General Review  
LA English

RE.CNT 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 13 OF 18 CAPLUS COPYRIGHT 2003 ACS  
AN 2000:5177 CAPLUS  
DN 132:136203  
TI Fine mapping of inhibitory anti-.alpha.5 monoclonal antibody epitopes that  
differentially affect integrin-ligand binding  
AU Burrows, Louise; Clark, Katherine; Mould, A. Paul; Humphries, Martin J.  
CS Wellcome Trust Centre for Cell-Matrix Research, University of Manchester,  
Manchester, M13 9PT, UK  
SO Biochemical Journal (1999), 344(2), 527-533  
CODEN: BIJOAK; ISSN: 0264-6021  
PB Portland Press Ltd.  
DT Journal  
LA English

RE.CNT 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 14 OF 18 CAPLUS COPYRIGHT 2003 ACS  
AN 1999:29436 CAPLUS  
DN 130:193302  
TI The fibronectin type III domain as a scaffold for novel binding proteins  
AU Koide, Akiko; Bailey, Charles W.; Huang, Xiaolin; Koide, Shohei  
CS Department of Biochemistry and Biophysics, University of Rochester Medical  
Center, Rochester, NY, 14642, USA  
SO Journal of Molecular Biology (1998), 284(4), 1141-1151  
CODEN: JMOBAK; ISSN: 0022-2836  
PB Academic Press  
DT Journal  
LA English

RE.CNT 50 THERE ARE 50 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 15 OF 18 CAPLUS COPYRIGHT 2003 ACS  
AN 1998:557921 CAPLUS  
DN 129:274445  
TI Design and use of a phage display library. Human antibodies with  
subnanomolar affinity against a marker of angiogenesis eluted from a  
two-dimensional gel  
AU Pini, Alessandro; Viti, Francesca; Santucci, Annalisa; Carnemolla,  
Barbara; Zardi, Luciano; Neri, Paolo; Neri, Dario  
CS Dipartimento di Biologia Molecolare, Sezione di Biochimica, Universita' di  
Siena, Siena, 53100, Italy  
SO Journal of Biological Chemistry (1998), 273(34), 21769-21776  
CODEN: JBCHA3; ISSN: 0021-9258  
PB American Society for Biochemistry and Molecular Biology  
DT Journal  
LA English

RE.CNT 56 THERE ARE 56 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 16 OF 18 CAPLUS COPYRIGHT 2003 ACS  
AN 1997:281127 CAPLUS

DN 126:260618  
TI Cyclic peptide mimics of RGD-binding sites and their use in inhibiting  
integrin-mediated cell attachment  
IN Ruoslahti, Erkki; Pasqualini, Renata  
PA La Jolla Cancer Research Foundation, USA  
SO PCT Int. Appl., 57 pp.  
CODEN: PIXXD2

DT Patent  
LA English

FAN.CNT 1

|      | PATENT NO.   | KIND | DATE     | APPLICATION NO. | DATE     |
|------|--|------|----------|-----------------|----------|
| PI   | WO 9708203   | A1   | 19970306 | WO 1996-US14058 | 19960826 |
|      | W: AU, CA, JP  |      |          |                 |          |
|      | RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE |      |          |                 |          |
|      | US 5817750   | A    | 19981006 | US 1995-520535  | 19950828 |
|      | AU 9669109   | A1   | 19970319 | AU 1996-69109   | 19960826 |
|      | US 5955572   | A    | 19990921 | US 1998-79432   | 19980514 |
| PRAI | US 1995-520535   |      | 19950828 |                 |          |
|      | WO 1996-US14058  |      | 19960826 |                 |          |
| OS   | MARPAT 126:260618  |      |          |                 |          |

L2 ANSWER 17 OF 18 CAPLUS COPYRIGHT 2003 ACS

AN 1995:781250 CAPLUS

DN 123:191600

TI A peptide isolated from phage display libraries is a structural and  
functional mimic of an RGD-binding site on integrins

AU Pasqualini, Renata; Koivunen, Erkki; Ruoslahti, Erkki

CS Cancer Research Center, La Jolla Cancer Research Foundation, La Jolla, CA,  
92037, USA

SO Journal of Cell Biology (1995), 130(5), 1189-96

CODEN: JCLBA3; ISSN: 0021-9525

PB Rockefeller University Press

DT Journal

LA English

L2 ANSWER 18 OF 18 CAPLUS COPYRIGHT 2003 ACS

AN 1995:558833 CAPLUS

DN 123:162132

TI Cloning of ligand-binding domains of bacterial receptors by phage display

AU Jacobsson, Karin; Frykberg, Lars

CS Swedish Univ. Agric. Sci., Uppsala, Swed.

SO BioTechniques (1995), 18(5), 878-85

CODEN: BTNQDO; ISSN: 0736-6205

PB Eaton

DT Journal

LA English

=> d 17 all

L2 ANSWER 17 OF 18 CAPLUS COPYRIGHT 2003 ACS

AN 1995:781250 CAPLUS

DN 123:191600

TI A peptide isolated from phage display libraries is a structural and  
functional mimic of an RGD-binding site on integrins

AU Pasqualini, Renata; Koivunen, Erkki; Ruoslahti, Erkki

CS Cancer Research Center, La Jolla Cancer Research Foundation, La Jolla, CA,  
92037, USA

SO Journal of Cell Biology (1995), 130(5), 1189-96

CODEN: JCLBA3; ISSN: 0021-9525

PB Rockefeller University Press

DT Journal  
 LA English  
 CC 6-3 (General Biochemistry)  
 AB Many integrins recognize short RGD-contg. amino acid sequences and such peptide sequences can be identified from phage libraries by panning with an integrin. Here, is a reverse strategy, the authors have used such libraries to isolate minimal receptor sequences that bind to fibronectin and RGD-contg. fibronectin fragments in affinity panning. A predominant cyclic motif, \*CWDDG/LWLC\*, was obtained (the asterisks denote a potential disulfide bond). Studies using the purified phage and the corresponding synthetic cyclic peptides showed that \*CWDDGWLC\*-expressing phage binds specifically to fibronectin and to fibronectin fragments contg. the RGD sequence. The binding did not require divalent cations and was inhibited by both RGD and \*CWDDGWLC\*-contg. synthetic peptides. Conversely, RGD-expressing phage attached specifically to immobilized \*CWDDGWLC\*-peptide and the binding could be blocked by the resp. synthetic peptides in soln. Moreover, fibronectin bound to a \*CWDDGWLC\*-peptide affinity column, and could be eluted with an RGD-contg. peptide. The \*CWDDGWLC\*-peptide inhibited RGD-dependent cell attachment to fibronectin and vitronectin, but not to collagen. A region of the .beta.-subunit of RGD-binding integrins that has been previously demonstrated to be involved in ligand binding includes a polypeptide stretch, KDDLW (in .beta.3) similar to WDDG/LWL. Synthetic peptides corresponding to this region in .beta.3 were found to bind RGD-displaying phage and conversion of its two aspartic residues into alanines greatly reduced the RGD binding. Polyclonal antibodies raised against the \*CWDDWGLC\*-peptide recognized .beta.1 and .beta.3 in immunoblots. These data indicate that the \*CWDDGWLC\*-peptide is a functional mimic of ligand binding sites of RGD-directed integrins, and that the structurally similar site in the integrin .beta. subunit is a binding site for RGD.

ST RGD site functional mimic integrin  
 IT **Fibronectins**  
 RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)  
 (CWDDGWLC peptide isolated from **phage display** libraries is a structural and functional mimic of RGD-binding site on integrins)

IT Integrins  
 RL: BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PROC (Process)  
 (CWDDGWLC peptide isolated from phage display libraries is a structural and functional mimic of RGD-binding site on integrins)

IT Animal growth regulators  
 RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)  
 (vitronectins, CWDDGWLC peptide isolated from phage display libraries is a structural and functional mimic of RGD-binding site on integrins)

IT 167776-74-1  
 RL: BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PROC (Process)  
 (CWDDGWLC peptide isolated from phage display libraries is a structural and functional mimic of RGD-binding site on integrins)

IT 99896-85-2, Arginyl-glycyl-aspartic acid  
 RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (CWDDGWLC peptide isolated from phage display libraries is a structural and functional mimic of RGD-binding site on integrins)

=> s fn3

L3 119 FN3

=> s 13 and phage

L4 5 L3 AND PHAGE

=> d 14 1-5

L4 ANSWER 1 OF 5 MEDLINE  
AN 1999057988 MEDLINE  
DN 99057988 PubMed ID: 9837732  
TI The fibronectin type III domain as a scaffold for novel binding proteins.  
AU Koide A; Bailey C W; Huang X; Koide S  
CS Department of Biochemistry and Biophysics, University of Rochester Medical Center, Rochester, NY, 14642, USA.  
NC GM 55042 (NIGMS)  
SO JOURNAL OF MOLECULAR BIOLOGY, (1998 Dec 11) 284 (4) 1141-51.  
Journal code: 2985088R. ISSN: 0022-2836.  
CY ENGLAND: United Kingdom  
DT Journal; Article; (JOURNAL ARTICLE)  
LA English  
FS Priority Journals  
EM 199901  
ED Entered STN: 19990209  
Last Updated on STN: 19990209  
Entered Medline: 19990128

L4 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2003 ACS  
AN 2002:615644 CAPLUS  
DN 137:164678  
TI Methods of identifying regulator molecules which modulates transcriptional activation of transcription regulatory region  
IN Zauderer, Maurice; Smith, Ernest S.  
PA University of Rochester, USA  
SO PCT Int. Appl., 224 pp.  
CODEN: PIXXD2  
DT Patent  
LA English  
FAN.CNT 1

|      | PATENT NO.      | KIND   | DATE     | APPLICATION NO. | DATE     |
|------|-----------------|--|----------|-----------------|----------|
| PI   | WO 2002062822   | A2   | 20020815 | WO 2002-US2814  | 20020204 |
|      | WO 2002062822   | A3   | 20021205 |                 |          |
|      | W:              | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM |          |                 |          |
|      | RW:             | GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG   |          |                 |          |
|      | US 2002192675   | A1   | 20021219 | US 2002-61395   | 20020204 |
| PRAI | US 2001-265589P | P  | 20010202 |                 |          |
|      | US 2001-265880P | P  | 20010205 |                 |          |
|      | US 2001-271423P | P  | 20010227 |                 |          |

L4 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2003 ACS  
AN 2002:51534 CAPLUS  
DN 136:117382  
TI Artificial antibody polypeptides  
IN Koide, Shohei  
PA Research Corporation Technologies, Inc., USA  
SO PCT Int. Appl., 164 pp.  
CODEN: PIXXD2

DT Patent  
LA English  
FAN.CNT 1

|      | PATENT NO.   | KIND | DATE     | APPLICATION NO. | DATE     |
|------|--|------|----------|-----------------|----------|
| PI   | WO 2002004523  | A2   | 20020117 | WO 2001-US21855 | 20010711 |
|      | WO 2002004523  | A3   | 20020502 |                 |          |
|      | W: AU, CA, JP  |      |          |                 |          |
|      | RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR |      |          |                 |          |
|      | US 2003027319  | A1   | 20030206 | US 2001-903412  | 20010711 |
| PRAI | US 2000-217474P  | P    | 20000711 |                 |          |

L4 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2003 ACS  
AN 1999:29436 CAPLUS  
DN 130:193302  
TI The fibronectin type III domain as a scaffold for novel binding proteins  
AU Koide, Akiko; Bailey, Charles W.; Huang, Xiaolin; Koide, Shohei  
CS Department of Biochemistry and Biophysics, University of Rochester Medical Center, Rochester, NY, 14642, USA  
SO Journal of Molecular Biology (1998), 284(4), 1141-1151  
CODEN: JMOBAK; ISSN: 0022-2836  
PB Academic Press  
DT Journal  
LA English

RE.CNT 50 THERE ARE 50 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 5 OF 5 CAPLUS COPYRIGHT 2003 ACS  
AN 1999:8119 CAPLUS  
DN 130:80347  
TI Artificial antibody polypeptides  
IN Koide, Shohei  
PA Research Corporation Technologies, Inc., USA  
SO PCT Int. Appl., 96 pp.  
CODEN: PIXXD2

DT Patent  
LA English

FAN.CNT 1

|      | PATENT NO.   | KIND | DATE     | APPLICATION NO. | DATE     |
|------|--|------|----------|-----------------|----------|
| PI   | WO 9856915   | A2   | 19981217 | WO 1998-US12099 | 19980612 |
|      | WO 9856915   | A3   | 19990304 |                 |          |
|      | W: AU, CA, JP  |      |          |                 |          |
|      | RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE |      |          |                 |          |
|      | AU 9879596   | A1   | 19981230 | AU 1998-79596   | 19980612 |
|      | AU 729035  | B2   | 20010125 |                 |          |
|      | EP 985039  | A2   | 20000315 | EP 1998-930131  | 19980612 |
|      | R: AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, NL, SE, IE                      |      |          |                 |          |
|      | JP 2001500531  | T2   | 20010116 | JP 1999-503195  | 19980612 |
|      | US 2002019517  | A1   | 20020214 | US 1998-96749   | 19980612 |
|      | US 6462189   | B1   | 20021008 | US 2000-638202  | 20000811 |
| PRAI | US 1997-49410P   | P    | 19970612 |                 |          |
|      | US 1998-96749  | A3   | 19980612 |                 |          |
|      | WO 1998-US12099  | W    | 19980612 |                 |          |

=> s 13 and library  
L5 10 L3 AND LIBRARY

=> d 15 1-10



L5 ANSWER 1 OF 10 MEDLINE  
 AN 2000424395 MEDLINE  
 DN 20389244 PubMed ID: 10931555  
 TI Engineered protein scaffolds for molecular recognition.  
 CM Erratum in: J Mol Recognit 2001 Mar-Apr;14(2):141  
 AU Skerra A  
 CS Lehrstuhl fur Biologische Chemie, Technische Universitat Munchen, D-85350  
 Freising-Weihenstephan, Germany.. Skerra@Weihenstephan.de  
 SO JOURNAL OF MOLECULAR RECOGNITION, (2000 Jul-Aug) 13 (4) 167-87. Ref: 115  
 Journal code: 9004580. ISSN: 0952-3499.  
 CY ENGLAND: United Kingdom  
 DT Journal; Article; (JOURNAL ARTICLE)  
 General Review; (REVIEW)  
 (REVIEW, ACADEMIC)  
 LA English  
 FS Priority Journals  
 EM 200009  
 ED Entered STN: 20000922  
 Last Updated on STN: 20010723  
 Entered Medline: 20000914

L5 ANSWER 2 OF 10 MEDLINE  
 AN 1999057988 MEDLINE  
 DN 99057988 PubMed ID: 9837732  
 TI The fibronectin type III domain as a scaffold for novel binding proteins.  
 AU Koide A; Bailey C W; Huang X; Koide S  
 CS Department of Biochemistry and Biophysics, University of Rochester Medical  
 Center, Rochester, NY, 14642, USA.  
 NC GM 55042 (NIGMS)  
 SO JOURNAL OF MOLECULAR BIOLOGY, (1998 Dec 11) 284 (4) 1141-51.  
 Journal code: 2985088R. ISSN: 0022-2836.  
 CY ENGLAND: United Kingdom  
 DT Journal; Article; (JOURNAL ARTICLE)  
 LA English  
 FS Priority Journals  
 EM 199901  
 ED Entered STN: 19990209  
 Last Updated on STN: 19990209  
 Entered Medline: 19990128

L5 ANSWER 3 OF 10 MEDLINE  
 AN 1998428065 MEDLINE  
 DN 98428065 PubMed ID: 9755483  
 TI Putative multiadhesive protein from the marine sponge Geodia cydonium:  
 cloning of the cDNA encoding a fibronectin-, an SRCR-, and a complement  
 control protein module.  
 AU Pahler S; Blumbach B; Muller I; Muller W E  
 CS Institut fur Physiologische Chemie, Abteilung Angewandte  
 Molekularbiologie, Universitat, Mainz, Germany.  
 SO JOURNAL OF EXPERIMENTAL ZOOLOGY, (1998 Oct 15) 282 (3) 332-43.  
 Journal code: 0375365. ISSN: 0022-104X.  
 CY United States  
 DT Journal; Article; (JOURNAL ARTICLE)  
 LA English  
 FS Priority Journals  
 OS GENBANK-Y14243  
 EM 199812  
 ED Entered STN: 19990115  
 Last Updated on STN: 19990115  
 Entered Medline: 19981204

L5 ANSWER 4 OF 10 MEDLINE  
 AN 91079757 MEDLINE  
 DN 91079757 PubMed ID: 2147944  
 TI Expression cloning of a human granulocyte colony-stimulating factor receptor: a structural mosaic of hematopoietin receptor, immunoglobulin, and fibronectin domains.  
 AU Larsen A; Davis T; Curtis B M; Gimpel S; Sims J E; Cosman D; Park L; Sorensen E; March C J; Smith C A  
 CS Immunex Corporation, Seattle, Washington 98101.  
 SO JOURNAL OF EXPERIMENTAL MEDICINE, (1990 Dec 1) 172 (6) 1559-70.  
 Journal code: 2985109R. ISSN: 0022-1007.  
 CY United States  
 DT Journal; Article; (JOURNAL ARTICLE)  
 LA English  
 FS Priority Journals  
 OS GENBANK-X55720; GENBANK-X55721  
 EM 199101  
 ED Entered STN: 19910322  
 Last Updated on STN: 19970203  
 Entered Medline: 19910131

L5 ANSWER 5 OF 10 CAPLUS COPYRIGHT 2003 ACS  
 AN 2002:615644 CAPLUS  
 DN 137:164678  
 TI Methods of identifying regulator molecules which modulates transcriptional activation of transcription regulatory region  
 IN Zauderer, Maurice; Smith, Ernest S.  
 PA University of Rochester, USA  
 SO PCT Int. Appl., 224 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 FAN.CNT 1

|      | PATENT NO.      | KIND   | DATE     | APPLICATION NO. | DATE     |
|------|-----------------|--|----------|-----------------|----------|
| PI   | WO 2002062822   | A2   | 20020815 | WO 2002-US2814  | 20020204 |
|      | WO 2002062822   | A3   | 20021205 |                 |          |
|      | W:              | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM |          |                 |          |
|      | RW:             | GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG   |          |                 |          |
|      | US 2002192675   | A1   | 20021219 | US 2002-61395   | 20020204 |
| PRAI | US 2001-265589P | P  | 20010202 |                 |          |
|      | US 2001-265880P | P  | 20010205 |                 |          |
|      | US 2001-271423P | P  | 20010227 |                 |          |

L5 ANSWER 6 OF 10 CAPLUS COPYRIGHT 2003 ACS  
 AN 2002:51534 CAPLUS  
 DN 136:117382  
 TI Artificial antibody polypeptides  
 IN Koide, Shohei  
 PA Research Corporation Technologies, Inc., USA  
 SO PCT Int. Appl., 164 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English

FAN.CNT 1

|      | PATENT NO.   | KIND | DATE     | APPLICATION NO. | DATE     |
|------|--|------|----------|-----------------|----------|
| PI   | WO 2002004523  | A2   | 20020117 | WO 2001-US21855 | 20010711 |
|      | WO 2002004523  | A3   | 20020502 |                 |          |
|      | W: AU, CA, JP  |      |          |                 |          |
|      | RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR |      |          |                 |          |
|      | US 2003027319  | A1   | 20030206 | US 2001-903412  | 20010711 |
| PRAI | US 2000-217474P  | P    | 20000711 |                 |          |

L5 ANSWER 7 OF 10 CAPLUS COPYRIGHT 2003 ACS

AN 1999:29436 CAPLUS

DN 130:193302

TI The fibronectin type III domain as a scaffold for novel binding proteins

AU Koide, Akiko; Bailey, Charles W.; Huang, Xiaolin; Koide, Shohei

CS Department of Biochemistry and Biophysics, University of Rochester Medical Center, Rochester, NY, 14642, USA

SO Journal of Molecular Biology (1998), 284(4), 1141-1151

CODEN: JMOBAK; ISSN: 0022-2836

PB Academic Press

DT Journal

LA English

RE.CNT 50 THERE ARE 50 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 8 OF 10 CAPLUS COPYRIGHT 2003 ACS

AN 1999:8119 CAPLUS

DN 130:80347

TI Artificial antibody polypeptides

IN Koide, Shohei

PA Research Corporation Technologies, Inc., USA

SO PCT Int. Appl., 96 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

|      | PATENT NO.   | KIND | DATE     | APPLICATION NO. | DATE     |
|------|--|------|----------|-----------------|----------|
| PI   | WO 9856915   | A2   | 19981217 | WO 1998-US12099 | 19980612 |
|      | WO 9856915   | A3   | 19990304 |                 |          |
|      | W: AU, CA, JP  |      |          |                 |          |
|      | RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE |      |          |                 |          |
|      | AU 9879596   | A1   | 19981230 | AU 1998-79596   | 19980612 |
|      | AU 729035  | B2   | 20010125 |                 |          |
|      | EP 985039  | A2   | 20000315 | EP 1998-930131  | 19980612 |
|      | R: AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, NL, SE, IE                      |      |          |                 |          |
|      | JP 2001500531  | T2   | 20010116 | JP 1999-503195  | 19980612 |
|      | US 2002019517  | A1   | 20020214 | US 1998-96749   | 19980612 |
|      | US 6462189   | B1   | 20021008 | US 2000-638202  | 20000811 |
| PRAI | US 1997-49410P   | P    | 19970612 |                 |          |
|      | US 1998-96749  | A3   | 19980612 |                 |          |
|      | WO 1998-US12099  | W    | 19980612 |                 |          |

L5 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2003 ACS

AN 1998:637888 CAPLUS

DN 130:48815

TI Putative multiadhesive protein from the marine sponge Geodia cydonium: cloning of the cDNA encoding a fibronectin-, an SRCR-, and a complement control protein module

AU Pahler, Sabine; Blumbach, Barbara; Muller, Isabel; Muller, Werner E. G.

CS Institut fur Physiologische Chemie, Abteilung Angewandte  
Molekularbiologie, Universitat, Mainz, D-55099, Germany  
SO Journal of Experimental Zoology (1998), 282(3), 332-343  
CODEN: JEZAOO; ISSN: 0022-104X  
PB Wiley-Liss, Inc.  
DT Journal  
LA English  
RE.CNT 62 THERE ARE 62 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 10 OF 10 CAPLUS COPYRIGHT 2003 ACS  
AN 1991:60184 CAPLUS  
DN 114:60184  
TI Expression cloning of a human granulocyte colony-stimulating factor  
receptor: a structural mosaic of hematopoietin receptor, immunoglobulin,  
and fibronectin domains  
AU Larsen, Alf; Davis, Terri; Curtis, Benson M.; Gimpel, Steve; Sims, John  
E.; Cosman, David; Park, Linda; Sorensen, Eric; March, Carl J.; Smith,  
Craig A.  
CS Immunex Corp., Seattle, WA, 98101, USA  
SO Journal of Experimental Medicine (1990), 172(6), 1559-70  
CODEN: JEMEAV; ISSN: 0022-1007  
DT Journal  
LA English

L10 ANSWER 4 OF 9 MEDLINE  
AN 2003090050 IN-PROCESS  
DN 22489747 PubMed ID: 12601141  
TI Exploring the potential of the **monobody** scaffold: effects of  
loop elongation on the stability of a fibronectin type III domain.  
AU Batori Vincent; Koide Akiko; Koide Shohei  
CS Department of Biochemistry and Biophysics, University of Rochester School  
of Medicine and Dentistry, Rochester, NY 14642 and Department of  
Biochemistry and Molecular Biology, The University of Chicago, Chicago, IL  
60637, USA.  
SO PROTEIN ENGINEERING, (2002 Dec) 15 (12) 1015-20.  
Journal code: 8801484. ISSN: 0269-2139.  
CY England: United Kingdom  
DT Journal; Article; (JOURNAL ARTICLE)  
LA English  
FS IN-PROCESS; NONINDEXED; Priority Journals  
ED Entered STN: 20030226  
Last Updated on STN: 20030226  
AB The tenth fibronectin type III domain of human fibronectin (FNfn10) is a  
small, monomeric beta-sandwich protein, similar to the immunoglobulins. We  
have developed small antibody mimics, '**monobodies**', using FNfn10  
as a scaffold. We initially altered two loops of FNfn10 that are  
structurally equivalent to two of the hypervariable loops of the  
immunoglobulin domain. In order to assess the possibility of utilizing  
other loops in FNfn10 for target binding, we determined the effects of the  
elongation of each loop on the conformational stability of FNfn10. We  
found that all six loops of FNfn10 allowed the introduction of four  
glycine residues while retaining the global fold. Insertions in the AB and  
FG loops exhibited very small degrees of destabilization, comparable to or  
less than predicted entropic penalties due to the elongation, suggesting  
the absence of stabilizing interactions in these loops in wild-type  
FNfn10. Insertions in the BC, CD and DE loops, respectively, resulted in  
modest destabilization. In contrast, the EF loop elongation was highly  
destabilizing, consistent with previous studies showing the presence of  
stabilizing interactions in this loop. These results suggest that all  
loops, except for the EF loop, can be used for engineering a binding site,  
thus demonstrating excellent properties of the **monobody** scaffold.

=> d 14 1-14

L4 ANSWER 1 OF 14 CAPLUS COPYRIGHT 2003 ACS  
AN 2002:793644 CAPLUS  
DN 137:309489  
TI Chimeric monobodies specific to .alpha..nu..beta.3 integrin and conjugates  
for diagnosing and treating cancerous and precancerous conditions  
IN Koide, Shohei; Dewhurst, Stephen; Koide, Akiko; Richards, Julie; Miller,  
Michelle  
PA University of Rochester, USA  
SO PCT Int. Appl., 85 pp.  
CODEN: PIXXD2  
DT Patent  
LA English  
FAN.CNT 1

|      | PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|------|---|------|----------|-----------------|----------|
|      | -----   | ---  | -----    | -----           | -----    |
| PI   | WO 2002081497   | A2   | 20021017 | WO 2002-US10763 | 20020404 |
|      | W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,<br>CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,<br>GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,<br>LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,<br>PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,<br>UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU,<br>TJ, TM |      |          |                 |          |
|      | RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,<br>CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,<br>BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG  |      |          |                 |          |
| PRAI | US 2001-281481P   | P    | 20010404 |                 |          |

L4 ANSWER 2 OF 14 CAPLUS COPYRIGHT 2003 ACS  
AN 2002:51534 CAPLUS  
DN 136:117382  
TI Artificial antibody polypeptides  
IN Koide, Shohei  
PA Research Corporation Technologies, Inc., USA  
SO PCT Int. Appl., 164 pp.  
CODEN: PIXXD2  
DT Patent  
LA English  
FAN.CNT 1

|      | PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|------|---|------|----------|-----------------|----------|
|      | -----   | ---  | -----    | -----           | -----    |
| PI   | WO 2002004523   | A2   | 20020117 | WO 2001-US21855 | 20010711 |
|      | WO 2002004523   | A3   | 20020502 |                 |          |
|      | W: AU, CA, JP   |      |          |                 |          |
|      | RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,<br>PT, SE, TR |      |          |                 |          |
|      | US 2003027319   | A1   | 20030206 | US 2001-903412  | 20010711 |
| PRAI | US 2000-217474P   | P    | 20000711 |                 |          |

L4 ANSWER 3 OF 14 SCISEARCH COPYRIGHT 2003 ISI (R)  
AN 2002:755617 SCISEARCH  
GA The Genuine Article (R) Number: 592NZ  
TI Directed evolution of high-affinity antibody mimics using mRNA display  
AU Xu L H; Aha P; Gu K; Kuimelis R G; Kurz M; Lam T; Lim A C; Liu H X; Lohse  
P A; Sun L; Weng S; Wagner R W; Lipovsek D (Reprint)  
CS Phylos Inc, 128 Spring St, Lexington, MA 02421 USA (Reprint); Phylos Inc,  
Lexington, MA 02421 USA  
CYA USA  
SO CHEMISTRY & BIOLOGY, (AUG 2002) Vol. 9, No. 8, pp. 933-942.

Publisher: CURRENT BIOLOGY LTD, 84 THEOBALDS RD, LONDON WC1X 8RR, ENGLAND.  
ISSN: 1074-5521.

DT Article; Journal

LA English

REC Reference Count: 70

\*ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS\*

L4 ANSWER 4 OF 14 MEDLINE DUPLICATE 1

AN 2002329194 MEDLINE

DN 22067082 PubMed ID: 12071856

TI In vitro selection of **fibronectin** gain-of-function mutations.

AU Tani Patricia H; Loftus Joseph C; Bowditch Ron D

CS Department of Biochemistry and Molecular Biology, The University of  
Oklahoma Health Sciences Center, Oklahoma City, OK 73190, USA.

NC AI47314 (NIAID)

GM51616 (NIGMS)

SO BIOCHEMICAL JOURNAL, (2002 Jul 1) 365 (Pt 1) 287-94.

Journal code: 2984726R. ISSN: 0264-6021.

CY England: United Kingdom

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 200207

ED Entered STN: 20020620

Last Updated on STN: 20020727

Entered Medline: 20020726

L4 ANSWER 5 OF 14 MEDLINE DUPLICATE 2

AN 2001116710 MEDLINE

DN 20573560 PubMed ID: 11123892

TI Analysis of antibody A6 binding to the extracellular interferon gamma  
receptor alpha-chain by alanine-scanning mutagenesis and random  
mutagenesis with **phage** display.

AU Lang S; Xu J; Stuart F; Thomas R M; Vrijbloed J W; Robinson J A

CS Institute of Organic Chemistry, University of Zurich, Winterthurerstrasse  
190, 8057 Zurich, Switzerland.

SO BIOCHEMISTRY, (2000 Dec 26) 39 (51) 15674-85.

Journal code: 0370623. ISSN: 0006-2960.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 200102

ED Entered STN: 20010322

Last Updated on STN: 20010322

Entered Medline: 20010215

L4 ANSWER 6 OF 14 MEDLINE DUPLICATE 3

AN 2000209395 MEDLINE

DN 20209395 PubMed ID: 10744708

TI Identification of a urokinase receptor-integrin interaction site.  
Promiscuous regulator of integrin function.

AU Simon D I; Wei Y; Zhang L; Rao N K; Xu H; Chen Z; Liu Q; Rosenberg S;  
Chapman H A

CS Cardiovascular, Brigham and Women's Hospital, Harvard Medical School,  
Boston, Massachusetts 02115, USA.

NC HL44712 (NHLBI)

HL57506 (NHLBI)

SO JOURNAL OF BIOLOGICAL CHEMISTRY, (2000 Apr 7) 275 (14) 10228-34.

Journal code: 2985121R. ISSN: 0021-9258.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English  
 FS Priority Journals  
 EM 200005  
 ED Entered STN: 20000518  
 Last Updated on STN: 20000518  
 Entered Medline: 20000508

L4 ANSWER 7 OF 14 MEDLINE  
 AN 2000069358 MEDLINE  
 DN 20069358 PubMed ID: 10601863  
 TI Characterization of adhesive epitopes with the Omps display system.  
 AU Lang H; Maki M; Rantakari A; Korhonen T K  
 CS Division of General Microbiology, Department of Biosciences, University of Helsinki, Finland.. Hannu.Lang@Helsinki.fi  
 SO EUROPEAN JOURNAL OF BIOCHEMISTRY, (2000 Jan) 267 (1) 163-70.  
 Journal code: 0107600. ISSN: 0014-2956.  
 CY GERMANY: Germany, Federal Republic of  
 DT Journal; Article; (JOURNAL ARTICLE)  
 LA English  
 FS Priority Journals  
 EM 200002  
 ED Entered STN: 20000229  
 Last Updated on STN: 20000229  
 Entered Medline: 20000215

L4 ANSWER 8 OF 14 SCISEARCH COPYRIGHT 2003 ISI (R)  
 AN 1999:778467 SCISEARCH  
 GA The Genuine Article (R) Number: 244CF  
 TI Structural and functional characterization of EMF10, a heterodimeric disintegrin from Eristocophis macmahoni venom that selectively inhibits alpha 5 beta 1 integrin  
 AU Marcinkiewicz C; Calvete J J; VijayKumar S; Marcinkiewicz M M; Raida M; Schick P; Lobb P R; Niewiarowski S (Reprint)  
 CS TEMPLE UNIV, SCH MED, FELS RES INST CANC & MOL BIOL, SOL SHERRY THROMBOSIS RES CTR, DEPT PHYSIOL, PHILADELPHIA, PA 19140 (Reprint); TEMPLE UNIV, SCH MED, FELS RES INST CANC & MOL BIOL, SOL SHERRY THROMBOSIS RES CTR, DEPT PHYSIOL, PHILADELPHIA, PA 19140; INST PEPTIDE RES, HANNOVER, GERMANY; CSIC, INST BIOMED, VALENCIA, SPAIN; THOMAS JEFFERSON UNIV, CARDEZA FDN HEMATOL RES, PHILADELPHIA, PA 19107; BIOGEN INC, CAMBRIDGE, MA 02142  
 CYA USA; GERMANY; SPAIN  
 SO BIOCHEMISTRY, (5 OCT 1999) Vol. 38, No. 40, pp. 13302-13309.  
 Publisher: AMER CHEMICAL SOC, 1155 16TH ST, NW, WASHINGTON, DC 20036.  
 ISSN: 0006-2960.  
 DT Article; Journal  
 FS LIFE  
 LA English  
 REC Reference Count: 34  
 \*ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS\*

L4 ANSWER 9 OF 14 MEDLINE DUPLICATE 4  
 AN 2000036334 MEDLINE  
 DN 20036334 PubMed ID: 10567237  
 TI Fine mapping of inhibitory anti-alpha5 monoclonal antibody epitopes that differentially affect integrin-ligand binding.  
 AU Burrows L; Clark K; Mould A P; Humphries M J  
 CS Wellcome Trust Centre for Cell-Matrix Research, University of Manchester, 2.205 Stopford Building, Oxford Road, Manchester M13 9PT, U.K.  
 SO BIOCHEMICAL JOURNAL, (1999 Dec 1) 344 Pt 2 527-33.  
 Journal code: 2984726R. ISSN: 0264-6021.  
 CY ENGLAND: United Kingdom  
 DT Journal; Article; (JOURNAL ARTICLE)  
 LA English



FS Priority Journals  
EM 200002  
ED Entered STN: 20000229  
Last Updated on STN: 20000229  
Entered Medline: 20000211

L4 ANSWER 10 OF 14 CAPLUS COPYRIGHT 2003 ACS  
AN 1999:8119 CAPLUS  
DN 130:80347  
TI Artificial antibody polypeptides  
IN Koide, Shohei  
PA Research Corporation Technologies, Inc., USA  
SO PCT Int. Appl., 96 pp.  
CODEN: PIXXD2  
DT Patent  
LA English  
FAN.CNT 1

|      | PATENT NO.   | KIND | DATE     | APPLICATION NO. | DATE     |
|------|--|------|----------|-----------------|----------|
| PI   | WO 9856915   | A2   | 19981217 | WO 1998-US12099 | 19980612 |
|      | WO 9856915   | A3   | 19990304 |                 |          |
|      | W: AU, CA, JP  |      |          |                 |          |
|      | RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE |      |          |                 |          |
|      | AU 9879596   | A1   | 19981230 | AU 1998-79596   | 19980612 |
|      | AU 729035  | B2   | 20010125 |                 |          |
|      | EP 985039  | A2   | 20000315 | EP 1998-930131  | 19980612 |
|      | R: AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, NL, SE, IE                      |      |          |                 |          |
|      | JP 2001500531  | T2   | 20010116 | JP 1999-503195  | 19980612 |
|      | US 2002019517  | A1   | 20020214 | US 1998-96749   | 19980612 |
|      | US 6462189   | B1   | 20021008 | US 2000-638202  | 20000811 |
| PRAI | US 1997-49410P   | P    | 19970612 |                 |          |
|      | US 1998-96749  | A3   | 19980612 |                 |          |
|      | WO 1998-US12099  | W    | 19980612 |                 |          |

L4 ANSWER 11 OF 14 MEDLINE DUPLICATE 5  
AN 1999057988 MEDLINE  
DN 99057988 PubMed ID: 9837732  
TI The **fibronectin** type III domain as a scaffold for novel binding proteins.  
AU Koide A; Bailey C W; Huang X; Koide S  
CS Department of Biochemistry and Biophysics, University of Rochester Medical Center, Rochester, NY, 14642, USA.  
NC GM 55042 (NIGMS)  
SO JOURNAL OF MOLECULAR BIOLOGY, (1998 Dec 11) 284 (4) 1141-51.  
Journal code: 2985088R. ISSN: 0022-2836.  
CY ENGLAND: United Kingdom  
DT Journal; Article; (JOURNAL ARTICLE)  
LA English  
FS Priority Journals  
EM 199901  
ED Entered STN: 19990209  
Last Updated on STN: 19990209  
Entered Medline: 19990128

L4 ANSWER 12 OF 14 CAPLUS COPYRIGHT 2003 ACS DUPLICATE 6  
AN 1998:397184 CAPLUS  
DN 129:156755  
TI A novel peptide, PLAIEDGIELTY, for the targeting of .alpha.9.beta.1-integrins  
AU Schneider, Holm; Harbottle, Richard P.; Yokosaki, Yasuyuki; Kunde, Jan; Sheppard, Dean; Coutelle, Charles

CS Division of Biomedical Sciences, Section of Molecular Genetics, Gene  
Therapy Research Group, Imperial College School of Medicine at St Mary's  
Hospital, London, W2 1PG, UK  
SO FEBS Letters (1998), 429(3), 269-273  
CODEN: FEBLAL; ISSN: 0014-5793  
PB Elsevier Science B.V.  
DT Journal  
LA English

RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 13 OF 14 MEDLINE  
AN 1998020906 MEDLINE  
DN 98020906 PubMed ID: 9382764  
TI The OmpS maltoporin of Vibrio cholerae as carrier of foreign epitopes.  
AU Lang H; Korhonen T K  
CS Department of Biosciences, University of Helsinki, Finland.  
SO BEHRING INSTITUTE MITTEILUNGEN, (1997 Feb) (98) 400-9. Ref: 23  
Journal code: 0367532. ISSN: 0301-0457.  
CY GERMANY: Germany, Federal Republic of  
DT Journal; Article; (JOURNAL ARTICLE)  
General Review; (REVIEW)  
(REVIEW, TUTORIAL)  
LA English  
FS Priority Journals  
EM 199711  
ED Entered STN: 19971224  
Last Updated on STN: 19971224  
Entered Medline: 19971110

L4 ANSWER 14 OF 14 SCISEARCH COPYRIGHT 2003 ISI (R)  
AN 96:23487 SCISEARCH  
GA The Genuine Article (R) Number: TL675  
TI PROTEIN **LOOP** GRAFTING TO CONSTRUCT A VARIANT OF TISSUE-TYPE  
PLASMINOGEN-ACTIVATOR THAT BINDS PLATELET INTEGRIN ALPHA(IIB)BETA(3)  
AU SMITH J W; TACHIAS K; MADISON E L (Reprint)  
CS SCRIPPS CLIN & RES INST, DEPT VASC BIOL, VB-1, 10666 N TORREY PINES RD, LA  
JOLLA, CA, 92037 (Reprint); SCRIPPS CLIN & RES INST, DEPT VASC BIOL, LA  
JOLLA, CA, 92037; LA JOLLA CANC RES FDN, PROGRAM CELL ADHES &  
EXTRACELLULAR MATRIX, LA JOLLA, CA, 92037  
CYA USA  
SO JOURNAL OF BIOLOGICAL CHEMISTRY, (22 DEC 1995) Vol. 270, No. 51, pp.  
30486-30490.  
ISSN: 0021-9258.  
DT Article; Journal  
FS LIFE  
LA ENGLISH  
REC Reference Count: 38  
\*ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS\*